a first control signal generator constructed and arranged so as to [means for] digitally [generating] generate said first control signal only in response to and in accordance with the signal energy of said [information] digitally represented difference signal within a second select spectral region including at least a part of said first select spectral region;

a digital gain [control means] controller, disposed in said signal path and coupled to said digital filter [means] arrangement, and constructed and arranged so as to vary [for varying] the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal; and

a second control signal generator constructed and arranged so as to [means for] digitally [generating] generate said second control signal in response to and as a function of the signal energy of said [information] digitally represented difference signal substantially within a third select spectral region within said predetermined bandwidth;

wherein the digital filter arrangement, first control signal generator, digital gain controller, and the second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of the information signal, and the sampling rate is chosen so as to be equal to an integer multiple of the frequency of a pilot tone that can be added to the difference signal to identify the encoded signal to a receiver.

8. (Amended) A digital system for encoding an electrical information signal of a predetermined bandwidth at a predetermined sample rate so as to preserve the signal content of said information and so that said information signal can be recorded on or transmitted through a channel with a frequency dependent dynamic range as an encoded difference signal representing the difference between two stereophonic audio signals, [through a] the [dynamically-limited, frequency dependent] channel having a narrower dynamically-limited portion in a first spectral region than in at least one other spectral region of said predetermined bandwidth, said system comprising:

an input [means] constructed and arranged so as to receive [for receiving] said

information signal;

a signal transmission path, coupled to said input [means] and constructed and arranged so as to transmit [for transmitting] said information signal received at said input [means];

an output [means] coupled to said input [means] through said signal transmission path for providing said information signal as encoded by said system;

a digital gain [control means] controller coupled to said signal path for varying the signal gain impressed on said information signal substantially throughout said predetermined bandwidth, said signal gain varying in response to and as a function of a first control signal;

a digital filter [means] arrangement, coupled to said signal path and said digital gain [control means for impressing] controller, and constructed and arranged so as to impress a second variable gain on the portion of said information signal substantially within said first spectral region so as to preemphasize said portion with respect to the remaining portions of said information signal, said second variable gain varying in response to and as a function of a second control signal;

a first control signal generator constructed and arranged so as to digitally generate [means for digitally generating] said first control signal in response to and as a function of the signal energy of said information signal substantially within a second spectral region of said predetermined bandwidth; and

a second control signal generator constructed and arranged so as to digitally generate [means for digitally generating] said second control signal only in response to and in accordance with the signal energy of said information signal within a third spectral region of said predetermined bandwidth including at least a part of said first spectral region;

wherein the digital gain controller, said digital filter arrangement, said first control signal generator and said second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of said information signal, and the sampling rate is chosen so as to be equal to an integer multiple of the frequency of a pilot tone that can be added to the encoded signal to identify the encoded signal to a receiver.

9. (Amended) An adaptive digital signal [weighing] weighting system[,] for use with a digitally represented difference signal representing the difference between two stereophonic audio signals, the system comprising:

a signal path for transmitting an electrical information signal of a predetermined bandwidth through said system;

a variable coefficient digital filter [means for filtering] arrangement (a) constructed and arranged so as to filter said information signal, [said filtering] the filter arrangement being characterized by a variable coefficient transfer function, and [said filtering] (b) constructed and arranged so as to vary [varying] the gain impressed on the portion of said information signal within a first select spectral region within said predetermined bandwidth by a first variable gain factor, the variable coefficients of said variable coefficient transfer function and said first variable gain factor varying in response to and as a function of a first control signal;

a first control signal generator constructed and arranged so as to digitally generate [means for digitally generating] said first control signal only in response to and in accordance with the signal energy of said information signal within a second select spectral region including at least a part of said first select spectral region;

a digital gain [control means] controller disposed in said signal path and coupled to said variable coefficient digital filter [means for varying] arrangement, and constructed and arranged so as to vary the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal; and

a second control signal generator constructed and arranged so as to digitally generate [means for digitally generating] said second control signal in response to and as a function of the signal energy of said information signal substantially within a third select spectral region within said predetermined bandwidth;

wherein the digital filter arrangement, first control signal generator, digital gain controller and second control signal generator each operate at a predetermined sample rate so as to preserve the signal content of said information signal, and the sampling rate is chosen so as to be equal to

an integer multiple of the frequency of a pilot tone that can be added to the difference signal to identify the difference signal to a receiver.

Please add the following new claims:

49. (New) A system according to claim 7, wherein the pilot frequency is substantially 15,734 Hz.

50. (New) A system according to claim 7, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

51. (New) A system according to claim 8, wherein the pilot frequency is substantially 15,734 Hz.

52. (New) A system according to claim 8, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

53. (New) A system according to claim 9, wherein the pilot frequency is substantially 15,734 Hz.

54. (New) A system according to claim 9, wherein DC signal energy is absent from the signal content of the information signal so as to prevent ticking.

55. (New) A digital implementation of an analog adaptive digital signal weighting system for use with a digitally represented difference signal representing the difference between two stereophonic audio signals, the system including a signal path for transmitting an electrical information signal containing information relating to the difference signal of a predetermined bandwidth through said system, said analog adaptive digital weighting system being of the type

including first analog control signal generator including a first analog filter component and a second analog control signal generator including a second analog filter component, said digital implementation further comprising:

a digital filter arrangement disposed in said signal path and constructed and arranged so as to vary the gain impressed on the portion of said information signal within a first select spectral region within said predetermined bandwidth by a first variable gain factor, said first variable gain factor varying in response to and as a function of a first control signal;

a first digital control signal generator constructed and arranged so as to digitally generate said first control signal only in response to and in accordance with the signal energy of said digitally represented difference signal within a second select spectral region including at least a part of said first select spectral region, said first digital control signal generator including a first digital filter component having an amplitude response such that the difference between the amplitude response of the first digital filter component and the amplitude response of the first analog filter component is minimized irrespective of their respective phase responses;

a digital gain controller, disposed in said signal path and coupled to said digital filter arrangement, and constructed and arranged so as to vary the signal gain impressed on said information signal substantially throughout said predetermined bandwidth by a second variable gain factor, said second variable gain factor varying in response to and as a function of a second control signal;

a second digital control signal generator constructed and arranged so as to digitally generate said second control signal in response to and as a function of the signal energy of said digitally represented difference signal substantially within a third select spectral region within said predetermined bandwidth, said second digital control signal generator including a second digital filter component having an amplitude response such that the difference between the amplitude response of the second digital filter component and the amplitude response of the second analog filter component is minimized irrespective of their respective phase responses; and

wherein the digital filter arrangement, first control signal generator, digital gain controller, and the second control signal generator each operate at a predetermined sample rate so as to